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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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			EXAMINER BONANTO, GEORGE P	
			ART UNIT 2855	PAPER NUMBER

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/797,600

Applicant(s)

SPAMPINATO ET AL.

Examiner

George P. Bonanto

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Objections

Claim 2 is objected to because of the following informalities: claim 2 contains the phrase, "wherein the support has a airfoil configuration." The word "a" should be deleted and the word "an" inserted in its place. Appropriate correction is required.

Claim 12 and 13 are objected to because of the following informalities: claims 12 and 13 contain the phrases, "wherein the support is tapered" and "wherein the support has a constant width." The claim element "support" lacks antecedent basis. The claim element "support" should be deleted, and the claim element "airfoil" inserted in its place. Appropriate correction is required.

Claim 15 is objected to because of the following informalities: claim 15 contains the phrase, "detects a angular velocity." The word "a" should be deleted and the word "an" should be inserted in its place. Appropriate correction is required.

Claim 32 is objected to because of the following informalities: claim 32 contains the phrase, "including the step of selecting the testing apparatus to have." The claim element "testing apparatus" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4 and 13 contain the limitation that "the support has a constant

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width in the second direction. Claims 1 and 10, however, state that the support is tapered between the leading edge and the trailing edge. These two limitations are contradictory, and the claims are, therefore, indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18-27, and 30-33 rejected under 35 U.S.C. 102(b) as being anticipated by publication “The aerodynamics of a tennis ball,” by Mehta et al.

As to claim 18, Mehta et al. disclose a method of determining fluid properties of a game ball comprising rotating the game ball about an axis (page 181, last paragraph) inducing fluid flow around the game ball in a first direction that is orthogonal to the axis (Figs. 3 and 4) and sensing forces on the game ball in the first direction and a second direction, the second direction being orthogonal to both the first direction and the axis (measure lift and drag, page 178).

As to claim 19, Mehta et al. further disclose placing the game ball in a wind tunnel (experiments conducted in a wind tunnel, page 179).

As to claim 20, Mehta et al. further disclose securing the game ball to a testing apparatus (model bonded to a steel rod, page 180).

As to claim 21, Mehta et al further disclose that the testing apparatus has a rotating element with a first end a second end and a longitudinal axis that extends between the first end and the second end and rotatable about the longitudinal axis (page 180, first paragraph) a mount

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located proximal the first end of the rotating element and configured to secure to the game ball, the mount being rotatable with the rotating element about the longitudinal axis (polyurethane foam, page 180 first paragraph) and airfoil extending around the rotating element, the airfoil having a leading edge and a trailing edge (symmetrical airfoil-shaped strut, page 180 beginning second column) and a sensor that detects the forces (visual detection of forces and reaction torque cell, page 179-180).

As to claim 22, Mehta et al. further disclose placing the game ball in a wind tunnel (experiments conducted in a wind tunnel, page 179).

As to claim 23, Mehta et al. further disclose rotating a different game ball about an axis, introducing fluid flow around the different game ball and sensing forces upon the different game ball (variety of tennis balls and spheres tested, page 180 second paragraph).

As to claim 24, Mehta et al. further disclose analyzing data relating to the forces upon the game ball and the forces upon the different game ball (Figs. 7-12 and related discussion).

As to claim 25, Mehta et al. further disclose incorporating characteristics from at least one of the game ball and the different game ball into a commercially-available game ball based upon the data (choosing ball size and surface characteristics to achieve "slowing down the game," page 188 second column).

As to claim 26, Mehta et al. disclose rotating a first test ball about an axis (page 181, last paragraph) inducing fluid flow around the first test ball (page 181 last paragraph to 182 first paragraph) sensing forces upon the first test ball due to the fluid flow (visualization of the wake deflection, page 182 first paragraph) collecting a first set of data relating to the forces upon the first test ball (new tennis ball data page 182 and Fig. 8) rotating a second test ball about the axis,

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inducing fluid flow around the second test ball, sensing forces upon the second test ball due to the fluid flow, collecting a second set of data relating to the forces upon the second test ball (test procedure done for a number of different tennis balls, Fig. 8) and incorporating characteristics from at least one of the first test ball and the second test ball into a game ball based upon an analysis of the first set of data and the second set of data (low fuzz ball for players favoring faster serves, page 188 last paragraph).

As to claim 27, Mehta discloses that the characteristics are texture (low fuzz ball, page 188) and seam depth (check if seam could generate asymmetric boundary layer separation, page 181).

As to claim 30, Mehta et al. disclose a method of selecting characteristics of a game ball comprising rotating a first test ball about an axis (page 181, last paragraph) inducing fluid flow around the first test ball (page 181 last paragraph to 182 first paragraph) sensing forces upon the first test ball due to the fluid flow (visualization of the wake deflection, page 182 first paragraph) collecting a first set of data relating to the forces upon the first test ball (new tennis ball data page 182 and Fig. 8) rotating a second test ball about the axis, inducing fluid flow around the second test ball, sensing forces upon the second test ball due to the fluid flow, collecting a second set of data relating to the forces upon the second test ball (test procedure done for a number of different tennis balls, Fig. 8) and incorporating characteristics from at least one of the first test ball and the second test ball into a game ball based upon an analysis of the first set of data and the second set of data (low fuzz ball for players favoring faster serves, page 188 last paragraph).

As to claim 31, Mehta et al. further disclose securing the first test ball to a testing apparatus (model bonded to a steel rod, page 180).

As to claim 32, Mehta et al. further disclose a support having a leading edge and a trailing edge and a longitudinal axis that extends through a first end and a second end of the support (symmetrical airfoil-shaped strut, page 180 beginning second column) a mount located proximal the first end of the support and configured to secure the first test ball, the mount being rotatable about the longitudinal axis (page 180, first paragraph) and a sensor that detects forces upon the first test ball (visual detection of forces and reaction torque cell, page 179-180).

As to claim 33, Mehta et al. further disclose that the ball is placed in a wind tunnel (experiments conducted in a wind tunnel, page 179).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,571,618 to Demay et al. in view of U.S. Pat. No. 3,306,101 to Holderer.

As to claim 1, Demay et al. disclose a testing apparatus comprising a support having a leading edge and a trailing edge, the support being tapered between the leading edge and the trailing edge (streamlined casing 44, Fig. 3) and the support having a longitudinal axis that extends through a first end and a second end of the support (axis B, Fig. 1) configured to support a game ball, a mount located proximal the first end of the support (clevis 26, Fig. 4) the mount

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being rotatable about the longitudinal axis (col. 4, lines 3-5). Demay et al. fail, however, to disclose a sensor that detects forces upon the game ball in a first direction and a second direction.

Holderer discloses a sensor that detects forces on a test subject in a first direction and a second direction, the first direction corresponding with a direction between the leading edge and the trailing edge (drag, col. 1, line 67) and the second direction being orthogonal to both the first direction and the longitudinal axis (side force, col. 1, lines 66-67).

It would have been obvious to one of ordinary skill in the art to use the sensor of Holderer in the testing apparatus of Demay et al. in order to measure the force components exerted on the game ball by moving air in a plurality of directions (Holderer col. 1 lines 51-70).

As to claim 2, Demay et al. further disclose that the support has an airfoil configuration between the leading edge and the trailing edge (streamlined casing 44, Fig. 3).

As to claim 3, Demay et al. further disclose that the support is tapered between the first and second end (streamlined casing 44, Fig. 3).

As to claim 4, Demay et al. further disclose that the support has a constant width in the second direction (streamlined casing 44, Fig. 3, the casing has a constant width in the second direction along a line in the direction of the axis B).

As to claim 5, Demay et al. further disclose that the support includes a rotating element that extends along the longitudinal axis (mast 22, Fig. 4 and col. 4, lines 3-5).

As to claim 6, Demay et al. further disclose that the mount (clevis 26, Fig. 4) is secured to the rotating element (mast 22, Fig. 4) and rotates with the rotating element (col. 4, lines 1-18).

As to claim 10, Demay et al. disclose a testing apparatus comprising a rotating element with a first end, a second end and a longitudinal axis that extends through the first end and the

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second end, the rotating element being rotatable about the longitudinal axis (mast 22, Fig. 4 and col. 4, lines 3-5) a mount located proximal the first end of the rotating element and configured to secure a game ball, the mount being rotatable with the rotating element about the longitudinal axis (clevis 26, Fig. 4 and col. 4, lines 1-18) an airfoil extending around the rotating element, the airfoil having a leading edge and a trailing edge (streamlined casing 44, Fig. 3). Demay et al. fail, however, to disclose a sensor that detects forces upon the game ball in a first direction and a second direction.

Holderer discloses a sensor that detects forces on a test subject in a first direction and a second direction, the first direction corresponding with a direction between the leading edge and the trailing edge (drag, col. 1, line 67) and the second direction being orthogonal to both the first direction and the longitudinal axis (side force, col. 1, lines 66-67).

It would have been obvious to one of ordinary skill in the art to use the sensor of Holderer in the testing apparatus of Demay et al. in order to measure the force components exerted on the game ball by moving air in a plurality of directions (Holderer col. 1 lines 51-70).

As to claim 11, Demay et al. further disclose that the airfoil has a leading edge and a trailing edge and is tapered between the leading edge and the trailing edge (streamlined casing 44, Fig. 3).

As to claim 12, Demay et al. further disclose that the support is tapered in an area between the first end and the second end of the rotating element (streamlined casing 44, Fig. 3).

As to claim 13, Demay et al. further disclose that the support has a constant width in the second direction (streamlined casing 44, Fig. 3, the casing has a constant width in the second direction along a line in the direction of the axis B).

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As to claim 14, Demay et al. further disclose that the mount (clevis 26, Fig. 4) is secured to the rotating element (mast 22, Fig. 4) and rotates with the rotating element (col. 4, lines 1-18).

Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,571,618 to Demay et al. in view of U.S. Pat. No. 3,306,101 to Holderer, in further view of publication "Golf Ball Aerodynamics," by Bearman et al.

Demay et al. and Holderer fail to disclose a tachometer connected to the rotating element that detects an angular velocity of the rotating element.

Bearman et al. disclose a tachometer operatively connected to a rotating element that detects an angular velocity of the rotating element (stroboscope, page 114 last paragraph).

It would have been obvious to one of ordinary skill in the art to modify the testing apparatus of Demay et al. including the sensor of Holderer by adding the tachometer of Bearman et al. in order to determine when the desired rotation rate of the game ball was reached when investigating the aerodynamics of the game ball as spin rate decays as it would in use, as well as for varying amounts of initial spin imparted by users of different skill (Bearman et al., page 112 last paragraph and Table 1).

Claims 8, 9, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,571,618 to Demay et al. in view of U.S. Pat. No. 3,306,101 to Holderer, in further view of publication "The aerodynamics of a tennis ball," by Mehta et al.

As to claims 8 and 16, Demay et al. and Holderer fail to disclose a motor operatively connected to the rotating element through a gear reducer.

Mehta et al. disclose a motor operatively connected to the rotating element through a gear reducer (pulley/belt system connected to variable speed motor mounted at the end of the steel rod, page 180, first full paragraph).

It would have been obvious to one of ordinary skill in the art to modify the testing apparatus of Demay et al. including the sensor of Holderer by rotating the rotating element with the motor connected through a gear reducer of Mehta et al. in order to allow the game ball to be rotated at a desired rate.

As to claims 9 and 17, Demay et al. and Holderer fail to disclose that the mount has a concave surface with a curvature that is substantially similar to a curvature of the game ball.

Mehta et al. disclose a mount (polyurethane foam and steel rod, page 180) that has a concave surface with a curvature (rod has a concave outer surface and polyurethane foam filled ball, page 180) that is substantially similar to a curvature of the game ball (tennis ball also round, therefore similar curvature, and polyurethane fills ball to match curvature page 180).

It would have been obvious to one of ordinary skill in the art to attach the game ball to the testing apparatus of Demay et al. including the sensor of Holderer using the polyurethane foam and steel rod of Mehta et al. that conforms to the curvature of the game ball in order to provide support to the game ball and provide a secure attachment.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over publication "The aerodynamics of a tennis ball" by Mehta et al. in view of publication "Engineers Discover Secrets of Soccer Free Kicks" by Carre.

Mehta et al. disclose rotating a first test ball about an axis (page 181, last paragraph) inducing fluid flow around the first test ball (page 181 last paragraph to 182 first paragraph)

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sensing forces upon the first test ball due to the fluid flow (visualization of the wake deflection, page 182 first paragraph) collecting a first set of data relating to the forces upon the first test ball (new tennis ball data page 182 and Fig. 8) rotating a second test ball about the axis, inducing fluid flow around the second test ball, sensing forces upon the second test ball due to the fluid flow, collecting a second set of data relating to the forces upon the second test ball (test procedure done for a number of different tennis balls, Fig. 8) and incorporating characteristics from at least one of the first test ball and the second test ball into a game ball based upon an analysis of the first set of data and the second set of data (low fuzz ball for players favoring faster serves, page 188 last paragraph). Mehta et al. fail, however, to disclose that the game ball is a soccer ball.

Carre discloses that the game ball is a soccer ball (Wind Tunnel Study and Trajectory Modeling).

It would have been obvious to one of ordinary skill in the art to make the soccer ball of Carre according to the manufacturing method of Mehta et al. in order to produce a soccer ball with enhanced Magnus force effect that bends more in flight.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over “The aerodynamics of a tennis ball” by Mehta et al. in view of publication “Engineers Discover Secrets of Soccer Free Kicks” by Carre in further view of Applicants Admission of Prior Art (AAPA).

Mehta et al. disclose rotating a first test ball about an axis (page 181, last paragraph) inducing fluid flow around the first test ball (page 181 last paragraph to 182 first paragraph) sensing forces upon the first test ball due to the fluid flow (visualization of the wake deflection,

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page 182 first paragraph) collecting a first set of data relating to the forces upon the first test ball (new tennis ball data page 182 and Fig. 8) rotating a second test ball about the axis, inducing fluid flow around the second test ball, sensing forces upon the second test ball due to the fluid flow, collecting a second set of data relating to the forces upon the second test ball (test procedure done for a number of different tennis balls, Fig. 8) and incorporating characteristics from at least one of the first test ball and the second test ball into a game ball based upon an analysis of the first set of data and the second set of data (low fuzz ball for players favoring faster serves, page 188 last paragraph). Mehta et al. fail, however, to disclose that the game ball is a soccer ball.

Carre discloses that the game ball is a soccer ball (Wind Tunnel Study and Trajectory Modeling). Carre fails, however, to disclose that the soccer ball includes a plurality of panels joined together by seams.

AAPA discloses that a soccer ball includes a plurality of panels joined together by seams (application paragraph 02).

It would have been obvious to one of ordinary skill in the art to make the soccer ball of Carre, including the panels and seams of AAPA, according to the manufacturing method of Mehta et al. in order to produce a soccer ball with enhanced Magnus force effect that bends more in flight.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Pat. Nos. 4,773,262; 5,056,361; 3,020,754; and Published U.S. Application

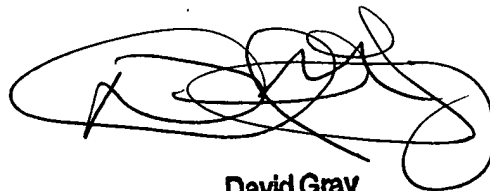
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Nos. 2004/0132551; 2004/0253107; and 2004/0262489 disclose various game balls, game ball testing and manufacturing methods, and wind tunnel supports.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George P. Bonanto whose telephone number is (571) 272-2182. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David M. Gray can be reached on (571) 272-2119. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'David Gray', with a large, loopy flourish extending from the end of the signature.

David Gray
Primary Examiner

GPB